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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

03/12/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,813	<b>Applicant(s)</b> OLES ET AL.	
	<b>Examiner</b> MATTHEW D. MATZEK	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-23 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) 6-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5 and 25-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

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***Response to Amendment***

1. The amendment dated 11/17/2009 has been fully considered and entered into the Record. Claims 1, 25, 26 and 29 have been amended. Claims 1, 4-23 and 25-34 remain pending with claims 6-23 withdrawn from consideration. Claims 1, 4, 5 and 25-34 remain active.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 4, 5 and 25-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 25, 26 and 29 now recite the limitation “high water retention capacity”, which is not supported in the instant specification. The application recites the term hydrophilic, which refers to an affinity to water, not an ability to retain high levels of water.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 4, 5 and 25-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. (US 2003/0013369 A1) in view of the Handbook of Fillers-A Definitive User's Guide and Databook, "The Handbook".

a. Soane et al. disclose nanoparticle-based treatments for textiles (title). The nanoparticles preferably have a size ranging from about 1 nm to 1 micron [0080]. The reactive nanoparticle may be made from a variety of materials including hydrophilic materials [0080]. Silica particles are used as sunblocking agents, [0112] but may also have hydrophilic properties. The hydrophilicity of the silica particles will increase the water retention capacity by promoting water absorption on the surface of the coated textile. The nanoparticle consists of the payload, in this case silica, and is surrounded by a polymer shell or matrix. The surrounding shell or matrix is in turn reactive with fibers, yarns, fabrics or webs and allows the nanoparticle to become anchored to the surface of textile [0005]. The nanoparticles then become fixative particles. The surrounding shell or matrix serves as the claimed carrier layer in that it facilitates the bonding of the payload to the surface of the textile. Examples I and II demonstrate that while the payload is embedded or entrapped in within the polymeric encapsulator, it is also capable of performing its desired function [0101]. The embedded nanoparticles may result from either solvation or a swelling process [0094]. An embedded nanoparticle allows for some degree of the surface of the silica to be exposed to the surrounding environment, while

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still being attached to its polymer shell or matrix that in turns connects the nanoparticle and the fiber/fabric it modifies. Functional groups of the nanoparticle shell react with the coated textile or web and the textile is then dried and the polymeric encapsulator may then be cured [0094].

b. Soane et al. teach the use of generic silica, but fail to teach the use of fumed silica for the purpose of making the treated surface hydrophilic.

c. The Handbook provides background information about the various forms of silica filler and how they are formed (page 131). Silica is commonly used in industry due to its chemical inertness and durability (page 131). Fumed silica is amorphous in nature and possesses benefits over its crystalline form (page 134). It is used as filler for a number of reasons including thixotropy, sag resistance, particle suspension, emulsifiability, reinforcement, gloss reduction, flow enhancement of powders, anti-caking, anti-slip, anti-blocking, etc. The many benefits offered by this filler allow fumed silica to be used in many industries (page 137). The reference also discloses the properties of fumed silica such as its primary particle size ranging from 5-40 nm and surface area of 50-400 m<sup>2</sup>/g (page 132).

d. Soane et al. and the Handbook are from the same field of endeavor (i.e. nanoparticle treatments).

e. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used the fumed silica as disclosed in the Handbook in the invention of Soane et al. with the motivation of providing improved performance due to the inherent properties of fumed silica and the amount of surface area available as

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disclosed. Soane et al. and the Handbook fail to explicitly state that their silica particles would act as a hydrophilicizing agent, but their combination does render the claimed invention obvious. The applied combination of references would necessarily yield the claimed hydrophilic surface.

f. Claim 25 is met as the textile of Soane et al. may be used as a cleaning textile.

g. The nanoparticles may be applied to a textile via methods known in the art such as soaking, spraying, dipping, fluid-flow, padding and the like [0094]. The concentration of the nanoparticles present in the solution used to treat the textile depends on the degree of nanoparticles deposition desired [0096]. In the same way the percentage of the surface composed of the nanoparticles is a result-effective variable affecting the function of the payload located in the nanoparticle has on the surface. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

h. Soane et al. fail to explicitly disclose that the polymeric shell of the nanoparticle is melted. Claim 32 is rejected as in order to coat the payload nanoparticles with the polymer shell it must be covered with molten polymer. Therefore, the polymer coated nanoparticles applied to the surface of the textile the carrier layer would necessarily comprise melted fixative as the shell at one time was molten. Furthermore, it would have been obvious to one of ordinary skill in the art to have heated the polymer to the point of at least partial melt because the melted polymer would offer additional surface area for

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bonding over an unmelted shell. The additional surface area would provide an increase in the bond strength over the single point covalent bonding available without any melting of the polymer.

### ***Double Patenting***

4. Claims 1, 5, 25-27 and 29-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 48 of copending Application No. 11/249,315. Although the conflicting claims are not identical, they are not patentably distinct from each other because the applied application fails to recognize the hydrophilic properties of the fumed silica, but hydrophilicity would be provided by the fumed silica due to its inherent properties. The percentage of the surface composed of the nanoparticles is a result-effective variable affecting the function of the payload located in the nanoparticle has on the surface. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1, 5 and 29-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3 and 7 of copending Application No. 10/506,604. Although the conflicting claims are not identical, they are not patentably distinct from each other because the applied application fails to recognize the

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hydrophilic properties of the fumed silica, but hydrophilicity would be provided by the fumed silica due to its inherent properties. The percentage of the surface composed of the nanoparticles is a result-effective variable affecting the function of the payload located in the nanoparticle has on the surface. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

6. Applicant's arguments filed 11/17/2009 have been fully considered but they are not persuasive.

7. Applicant argues that no time release of an active ingredient is required in the claimed invention and the hydrophilic particle imparts increased hydrophilicity to the surface to which it is attached. The silica particles of Soane et al. may be embedded in the polymeric matrix material that attaches the particles to the desired surface. As pointed out in paragraphs 0007-0009 the active payload particle, in this instance silica, may remain linked to the fabric, fiber, etc. to which it has been attached, while at the same time having an exposed surface that allows for its functioning. Applying fumed silica in this manner to the surface of fabric, fiber, etc. will result in the claimed invention with its hydrophilic properties.



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8. Applicant argues that particles of the applied '315 application are not equivalent the claimed fumed silica and as such would not result in the claimed invention. Silica, or silicon dioxide,  $\text{SiO}_2$ , is sometimes considered a silicate, although it is the special case with no negative charge and no need for counter-ions. The applied claims may contain fumed silicate and as such covers fumed silica, which matches the claimed invention and would possess the claimed hydrophilic properties

9. Applicant argues that the claimed invention is directed to textiles with fumed silica on its surface to render it hydrophilic and one of ordinary skill in the art would have no reason to have specifically picked fumed silica over the other particle components listed to arrive at the claimed invention. Examiner has only rejected the broader claims reciting a generic article with the fumed silica, not textiles or fibers. The applied claims recite fumed silica, which would possess the claimed hydrophilic properties and would impart them to the injection molded article with fumed silica upon its surface. The hydrophilicity of the injection molded article would contribute to its self-cleaning properties.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/  
Examiner, Art Unit 1794

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit  
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